

ETHEKWINI MUNICIPALITY
Occupational Health & Safety Unit



BASELINE RISK ASSESSMENT

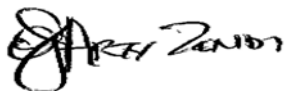
Document Title	Site Specific Health and Safety Specification
Client	eThekwini Transport Authority eThekwini Municipality
Project Name	Widening of Sea Cow Lake Road between Chris Hani Road up to and including the overhead rail bridges on Sea Cow Lake Road, including full depth layer works
Contract Number	1T-34277
Revision	01
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Compiled by Senior Safety Officer	Name: Nombulelo Khanyile
	Signature: 
Reviewed by Manager Safety & Risk	Name: Arty Zondi
	Signature: 

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TITLE

The Hazard Identification and Risk Assessment of Occupational Health and Safety parameters on the widening of Sea Cow Lake Road between Chris Hani Road up to and including the overhead rail bridges on Sea Cow Lake Road including full layer works.

TERMS OF REFERENCE

Miss Nombulelo Khanyile from eThekweni Municipality and a representative Shanelle Naidu from eThekweni Transport Authority conducted a Baseline Risk Assessment based on scope of works set out in IT 34277, site visit and approved architectural drawings of the facility. The assessment was conducted on **09 February, 2018**, during normal working hours.

EXECUTIVE SUMMARY

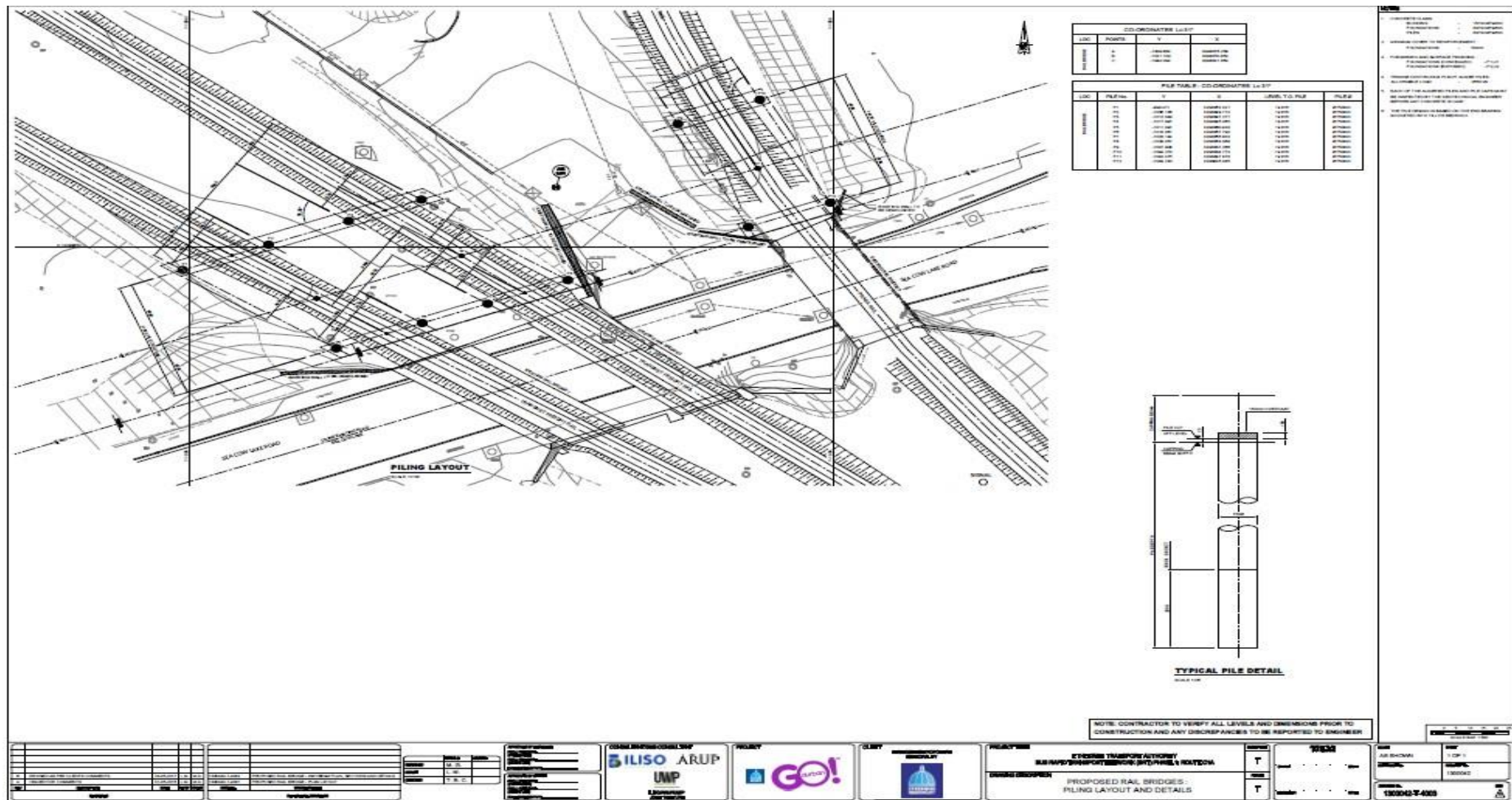
The Occupational Health and Safety Act of 1993, and its relevant regulations, require employers to conduct a Baseline Risk Assessment prior to the work being performed.

This assessment and observations were made at the above site under the conditions which prevailed on the date of the assessment. Detailed conclusions are given in the relevant sections of this report.

SCOPE OF WORK

This project, the construction of the widening of Sea Cow Lake Road between Chris Hani Road up to and including the overhead rail bridges on Sea Cow Lake Road including full layer works consists of the following elements:

- Supply all the material as per the bill of quantity list provided;
- Construction/Installation as per the drawing- Electrical, surface drainage.
- Widening of the Sea Cow Lake Road
- Full depth earthworks
- Establishment of – paved walkways, median island, pedestrian crossing
- Protection / relocation of existing services
- Upgrading and new construction of surface draining / modification of storm water pipes , kerb inlets, grid inlets cut off drains
- Structural work – reinforced deck, foundation , piles and capping beams
- Superstructure / substructure
- Moving of overhead tension bridge
- Move suspension point for overhead cables
- Move overhead concrete mast / steel mast poles
- Relocate of underground services (signal cables / fibre optic cables)
- Track clearance protection
- Track support



Position of the Piles



Arial view of the site

BASELINE RISK ASSESSMENT

- 1. INTRODUCTION:** In accordance with the Occupational Health and Safety Act, (Act 85 of 1993) the Legislator places specific requirements on an Employer. One of these is prescribed in Section 8(i) of the Act where it requires the Employer to ascertain the risks and dangers which may occur within the workplace or section of the workplace and then goes on to establish working procedures or practices.
- 2. PURPOSE:** This is conducted to create a benchmark of the potential risks that apply to the whole project or business operation.
- 3. SCOPE:** This assessment could be approached on a site, regional or national level concerning any facet of the business operation or process or activity.

4. ABBREVIATIONS, ACRONYMS AND DEFINITIONS

ABBREVIATION, ACRONYM OR DEFINITION	MEANING
Risk	Uncertain future events that can influence the achievement of the company's objective. Chance of loss
Exposure	Is a condition or practice which involves the employee being subjected to the Hazard or Danger while being normally unprotected
Likelihood or Probability	(inevitable to almost impossible) the Frequency of the exposure (constant to rarely) being one of the parameters
Consequence or Severity	This could be either having a financial, injury and or illness outcome

Risk Ranking	There are three stages namely: IDENTIFYING the RISK:- in terms of the hazard, threats EVALUATING:- the hazard, threats and or exposures identified to establish the potential magnitude of the RISK involved VALUE JUDGEMENT or APPRAISING:- the acceptability and potential impact as well as the magnitude of the hazards, exposure and evaluating the outcome on the business, operations and or the health and safety of people and processes
Risk Rating	Equals = Severity + Frequency + Exposure
Baseline Risk Assessment	This is conducted to create a benchmark of the potential risks that apply to the whole project or business operation.
Issue based	This is normally focused at operational activities, processes, systems and functions and focuses on identifying the risks within a certain task, process or activity

ABREVIATION, ACRONYM OR DEFINITION	MEANING
Continuous Risk Assessment	The processes, systems and activities monitored on an ongoing basis
Hazard	A chemical, physical, social or political condition that has the potential of causing damage or any kind of harm to people, property the environment or business continuity.
OHS Act	Occupational Health and Safety Act, Act 85 of 1993
Task based Risk Assessment	The appointed Contractor develops a Risk Assessment based on the Clients Baseline and project specific activities
Severity / Consequence	The degree of harm, the potential severity of the injuries or ill health and or the number of people potentially affected

Exposure	Chance that a person or persons will be harmed during the exposure period
Frequency	A measure of the rate of occurrence of an event expressed as the number of occurrences in a given time
Intolerable Risk	Risk is intolerable and cannot be justified on any grounds
Significant Risk	Risk in which benefit outweighs cost
Moderate Risk	Risk is if cost of reduction would exceed improvement
Tolerable Risk	A Risk that has been reduced to a level that can be endured by the organization having regard to its legal obligations and its own Safety and Health Policy
Residual Risk	The risk that remain after taking into account the effect of the existing controls that have been applied

5. REFERENCE DOCUMENT

Occupational Health and Safety Act, Act 85 of 1993 Environmental Act Construction Regulations 2014	Section 14: General duties of employees at work. Section 13: Duty to inform Section 8: General duties of the employer to their employees Entire document
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5. RISK ASSESSMENT METHODOLOGY

All Risk identified during Risk Identification has to be assessed for significance in terms of probability of the Risk event to occur and the impact of the event.

Ranking of the Risk can be based on a simple scale ranging from:

- Very likely to almost certainly
- Actual numerical probabilities can be used
- Risk that are ranking High receives highest priority

The approach and process:

1. Identify the risk / hazards associated with the work activities
2. Assess the risk in terms of severity, likelihood of occurring and controllability
3. Evaluate the risks / hazards
4. Determine the level of control
5. Implement controls
6. Monitor the effectiveness of controls

7. RISK ESTIMATION AND EVALUATION

RISK CLASSIFICATION USING A RISK SCORE TECHNIQUE

Exposure (E) How frequently does the hazardous event occur		Risk classification
Continuously		10
Frequently (daily)		6
Occasionally (weekly)		3
Unusually (monthly)		2
Rarely (few a year)		1
Probability (P) The probability of a loss when the hazardous event does occur		Risk classification
Frequent (happens often)		10
Probable (quite possible)		6
Occasional (unusual, but possible)		3
Remotely possible (has happened somewhere)		1
Improbable (practically impossible)		0.5
Severity (S) Consequences of the hazardous event		Risk classification
Catastrophic many fatalities; or interruption of longer than 2 weeks; or asset or environmental damage (or both) exceeding R100m		100
Disaster (few fatalities; or interruption between one and 2 weeks; or asset or environmental damage (or both) exceeding R10m)		40
Very serious (one fatality; or interruption of 6 days; or asset or environmental damage (or both) exceeding R100,000		7
Important (temporary disability; or interruption between 6 and 24 hours; or damage exceeding R10,000		3
Noticeable (first aid needed; or interruption of less than 6 hours; damage exceeding R1000)		1

Risk classification (Risk score = E x P x S)

Risk score

Over 400-----5
 200 to 400 ----- 4
 70 to 200----- 3
 20 to 70----- 2
 20 ----- 1

Risk classification

Very high risk – discontinue operation or activity
 High risk – immediate correction needed
 Substantial risk – correction needed
 Possible risk – attention needed Under
 Risk accepted

5	
4	
3	
2	
1	

BASELINE RISK ASSESSMENT WORKSHEET: IDENTIFYING EXISTING & POTENTIAL RISKS

Risk Ref.	Activity	Potential Hazard	Risk	Risk Evaluation			Risk Score E x P x S	Risk Level	Risk Rank	Control Measure
				E	P	S				
1 Site Access										
	Accessing the site using construction vehicles	Excessive speed on roads leading to the site	Construction trucks/vehicles not negotiating the road bends at high speeds may cause accidents resulting in damage to equipment or severe injuries	6	6	7	252	High	4	The Contract Manager must ensure that the access roads are surveyed prior to the construction vehicles and trucks accessing the site. The Contract Manager must develop and implement a Driving Policy and Procedure detailing the site access procedures, restrictions and requirements
		Roads blocked off due to community protest	Construction trucks and vehicles could crash into barricades resulting in damage to equipment or severe injuries	1	8	7	56	Possible Risk	2	The Contract Manager must ensure that close communication is kept with the local authorities and the appointed Community Liaison Officer to ensure that all personnel accessing the site are timeously alerted.

BASELINE RISK ASSESSMENT WORKSHEET: IDENTIFYING EXISTING & POTENTIAL RISKS

Risk Ref.	Activity	Potential Hazard	Risk	Risk Evaluation			Risk Score E x P x S	Risk Level	Risk Rank	Control Measure
				E	P	S				
1 Site Access										
		Pot holes/Speed humps	Construction trucks could crash into other vehicles resulting in damage to equipment	6	6	7	252	High	4	The Contract Manager must ensure that staff adhere to the speed limit and be extra vigilant during peak traffic hours
		Transportation of staff to and from the site	Construction vehicles could crash into other vehicles / buildings resulting in damage to equipment or employees being injured	6	6	7	252	High	4	The Contract Manager must develop a Driving Policy which incorporates the use of cell phones whilst driving and adherence to speed limits. The Contract Manager must ensure all construction vehicles and staff comply to CR23
	Delivering of equipment to the site	Plant Mechanical failure	The truck could crash into personnel, other vehicles or structures resulting in critical injuries	6	6	6	216	High	4	The Contract Manager must ensure te truck is deemed roadworthy, free of oil spills and recent inspection and service records are in place.

BASELINE RISK ASSESSMENT WORKSHEET: IDENTIFYING EXISTING & POTENTIAL RISKS

Risk Ref.	Activity	Potential Hazard	Risk	Risk Evaluation			Risk Score E x P x S	Risk Level	Risk Rank	Control Measure
				E	P	S				
1 Site Access										
		Pedestrian /children using public road	Vehicles/trucks could crash into pedestrians walking along the roadside resulting in critical injuries or fatalities	6	6	7	252	High	4	Contract Manager must implement their developed and approved Policy
		Oil or petrol spill	Oil and petrol spill could cause ground contamination	6	6	1	36	Possible Risk	2	Contract Manager to ensure the truck is deemed roadworthy. Ensure the Environmental Management Plan are adhered to and the vehicle is equipped with a spill control kit.
		Adverse weather conditions	Poor visibility and or wet roads may result in a motor vehicle accident	6	6	7	252	High	4	Contract Manager to ensure the Driving Policy and Procedures are implemented

BASELINE RISK ASSESSMENT WORKSHEET: IDENTIFYING EXISTING & POTENTIAL RISKS

				Risk Evaluation						
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Risk Ref.	Activity	Potential Hazard	Risk	E	P	S	Risk Score E x P x S	Risk Level	Risk Rank	Control Measure
1 Site Access										
	Open steep excavation	Accessing steep topography	Employees slipping and falling. Machinery / tools rolling down embankment out of control	6	6	3	108	Substantial Risk	3	Contract Manager must compile a site specific risk assessment for the various site locations and develop a safe work procedure from these
									33	
2 Site Establishment										
	Site clearing using Earthmoving equipment/ machinery Deep layer works	Protected vegetation	Damage to protected vegetation could result in damage to the ecosystem	3	3	1	9	Risk Accepted	1	The Contract Manager must ensure that protected vegetation is clearly demarcated and the Environmental Plan is adhered to
		Use of defective plant	The use of defective plant may result in accidents	3	3	3	27	Possible Risk	2	The Contract Manager must verify that all plant utilized on the site has a recent service inspection register in place signed by the Technical Manager.

BASELINE RISK ASSESSMENT WORKSHEET: IDENTIFYING EXISTING & POTENTIAL RISKS

Risk Ref.	Activity	Potential Hazard	Risk	Risk Evaluation			Risk Score E x P x S	Risk Level	Risk Rank	Control Measure
				E	P	S				
2 Site Establishment										
		Insufficient Potable water	Insufficient Potable water could result in a dehydrated workforce	2	3	1	6	Risk Accepted	1	The Construction Manager must conduct a site assessment prior to establishment of the site camp and alternative arrangements made where to source a constant supply of potable water
		Inadequate Welfare Facilities	Inadequate sheltered eating areas may cause workers to eat in hazardous areas resulting to injuries	2	3	1	6	Risk Accepted	1	The Construction Manager must ensure clean, maintained, safe and sheltered eating area(s) able to cater for all employees are erected in close proximity to the workforce.
		Inadequate or insufficient Ablution Facilities	Inadequate or insufficient Ablution Facilities may result in employees using areas not designated for the use thereof	2	3	1	6	Risk Accepted	1	The Construction Manager must provide sufficient (1:30)portable clean and maintained toilets in close proximity to the employees

		Unsafe positioning of ablution and sheltered eating areas	Unsafe positioning of ablutions and sheltered eating areas may result in vehicles veering of the road and into the facilities and resulting in critical injuries	6	6	3	54	Possible Risk	2	The Contract Manager must ensure that a survey is conducted, the risks assessed before the facilities are positioned and the welfare facilities are positioned at a strategic and safe location.
			Insufficient portable toilets may result workers utilizing open areas resulting in injuries and illness	3	3	1	9	Risk Accepted	1	The Construction Manager must provide sufficient (1:30) portable clean and maintained toilets in close proximity to the employees
	Clearing of the site area	Snakes Common venomous snakes in KZN i.e. Black Mamba, Puff Adder, Boom Slang, Green Mamba	The presence of snakes may result in snake bites causing fatalities	6	6	7	252	High	4	The Contract Manager must ensure that a snake standard or procedure is developed and implemented. The Construction Manager must embark on a snake/venomous animals awareness training programme.

BASELINE RISK ASSESSMENT WORKSHEET: IDENTIFYING EXISTING & POTENTIAL RISKS

Risk Ref.	Activity	Potential Hazard	Risk	Risk Evaluation			Risk Score E x P x S	Risk Level	Risk Rank	Control Measure
				E	P	S				
2 Site Establishment										
		Noise Pollution	Excessive continuous noise may result in NIHL	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that all plant from plant hire companies (suppliers) or that of the PC are compliant with the NIHL Regulations GNR.307 OF 2 March 2003
	The storage /useage of flammable liquid/gasses and combustible materials	The incorrect storage of flammable liquids/gasses and combustible materials	The incorrect storage could lead to Environmental spillages	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that they adhere to the Client H&S Specification with regards to combustible substances.

	The usage of flammable liquids/gasses	The uncontrolled usage of flammable liquids/gasses	The uncontrolled use of flammable liquids/gasses may result in fires and or explosions resulting in burns/ Property damage	6	6	7	252	High	4	The Construction Manager must ensure that they adhere to the Client H&S Specification with regards to hazardous chemical substances. The Construction Manager must ensure that a site specific emergency management plan is developed for implementation
	Appointment of Personnel	Medical unfitness	Medically unfit employees could result in medical induced incidents	6	6	7	252	High	4	The Construction Manager must ensure that all employees undergo an annual medical examination by an Occupational Health Practitioner in the form of an Annexure 3
	Unsafe storage practices	Collapse of stored materials	Collapse of stored materials may result in injury of personnel	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that they adhere to stacking and storage principles as contained in the General Safety Regulations

	Installation of Temporary Electrical Installations - Overhead tension bridge - Suspension point - Obtaining a permit to isolate overhead powerline	Exposed Electrical Cables/ Wires	Contact with exposed electrical cables may result in electrocution	6	6	7	252	High	4	The Contract Manager must ensure that a certified electrician is appointed and a site specific H&S Plan, risk assessment, lock-out and safe working procedures are developed for implementation Permit to work is to be obtained from PRASA and Freight Rail
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BASELINE RISK ASSESSMENT WORKSHEET: IDENTIFYING EXISTING & POTENTIAL RISKS

Risk Ref.	Activity	Potential Hazard	Risk	Risk Evaluation			Risk Score E x P x S	Risk Level	Risk Rank	Control Measure
				E	P	S				

3 Traffic Accommodation										
	Setting up of temporary road works signage	Placing of incorrect signage at locations	Misinformation may cause drivers to become unable to discern what to do resulting in accidents and irate members of the public	6	6	3	54	Possible Risk	2	The Contract Manager must ensure that a suitable site specific Traffic Management Plan is developed and implemented and a competent Traffic Safety Officer is appointed for the duration of the contract. All temporary road traffic signage must comply with the SARTSM
		Handling and placement of signage without wearing the correct PPE	Handling of signage without gloves, reflective vests and safety boots may result in injuries	3	3	1	9	Risk Accepted	1	The Contract Manager must ensure that a task specific risk assessment for PPE control is implemented
	Public vehicular and pedestrian traffic travelling	Workers injured by	Collision of public vehicles and	10	6	7	420	Very High	5	The Contract Manager must ensure that a competent Traffic Safety Officer is
	on the public road during construction work	passing traffic	workers							appointed and a site specific Traffic Management Plan is implemented

		Limited or no advanced warning area may result in accidents	Collision of public vehicles and workers	6	6	7	252	High	4	The Traffic Safety Officer must ensure that temporary road works signage is laid out as per the SARTSM and approved Traffic Management Plan
									12	
4 Bulk Earthworks										
	Transporting of material to and from the site	Defective tipper trucks, excavators and front end loaders	The use of defective plant /equipment may result in accidents	6	6	3	54	Possible Risk	2	The Contract Manager must verify that all Tipper trucks utilized on site has a recent service inspection register in place and is signed of by the relevant Technical Manager
		The use of incompetent Operators	The use of incompetent operators may result in accidents	6	6	7	252	High	4	The Contract Manager must verify that the Operators are deemed competent to operate the Tippers and are medically fit
		Reversing into public vehicles or property	Reversing into vehicles and property resulting in damages	6	6	3	54	Possible Risk	2	The Contract Manager must ensure that each driver is accompanied by a competent banksman and designated safe areas for off loading demarcated

		Uneven ground, soft soil, Embankment prone to landslides	Damage to plant and equipment as well as crushing injuries or fatalities	6	6	7	252	High	4	The Contract Manager must ensure that each driver is accompanied by a competent banksman when working in high risk areas
		Steep Gradients	Damage to plant and equipment as well as crushing injuries or fatalities	6	6	7	252	High	4	The Contract Manager must assess steep gradients on foot before plant is moved onto the site to determine if the area is safe before work commences
									16	
5 Construction Activities										
	Survey of the Work Area	Workers injured by passing traffic	Collision of public vehicles and workers	6	6	7	252	High	4	The Traffic Safety Officer must ensure that all workers are inducted before a survey of the site is done and suitable P.P.E worn
	Excavations Protection and relocation of underground services	Contact with underground services	Workers could be fatally injured and plant damaged if these are not located in layout drawings	6	6	7	252	High	4	The Contract Manager must ensure that restrictions are put in place where underground utilities are i.e High Voltage Cables

		Open excavations	Employees and members of the public could be injured	6	6	3	54	Possible Risk	2	The Construction Manager must appoint a competent Excavation Supervisor at the work front.
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										Excavations must be checked daily. The Construction Manager must ensure that open excavations (if necessary) are barricaded with a barrier or fence-like structure of at least 1m. (Requirements of CR13 must be met)
	Surface drainage Piling Drains Storm water pipes	Uneven ground, soft soil, Embankment prone to landslides	Damage to plant and equipment as well as crushing injuries or fatalities	6	6	7	252	High	4	The Contract Manager must ensure that each driver is accompanied by a competent banksman when working in high risk areas
	Compaction	Workers continuously exposed to vibratory equipment	Continuous to vibration may result in white finger	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that a rotation schedule is developed and implemented for the use of compaction equipment. The Construction Manager must ensure that all Operators of compaction equipment have valid medical fitness certificates available

		Noise pollution	Excessive continuous noise	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that all plant from hired companies
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			may result in NIHL							(suppliers) or that of the PC are compliant with the Noise Induced Hearing Loss Regulation GNR.307 OF 7 March 2003
		Oil or petrol spills	Oil or petrol spills could result in ground contamination	3	1	1	3	Risk Accepted	1	The Construction Manager must ensure that the truck is deemed roadworthy, free of oil spills and recent service and daily inspection records are in place. Ensure that the requirements of the Environmental Management Plan are adhered to and vehicles are equipped with a oil spill kit

	Manually handling of Cement	Inhalation of cement dust	Employees continuous inhalation of cement dust may result in respiratory illnesses	6	3	3	54	Possible Risk	2	The Construction Manager must ensure that SWP is developed, implemented and that all employees are instructed in the content of this SWP.
		Cement packaging	Cement packages could	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that SWP is
			enter the water course or cause ground pollution					le Risk		developed, implemented and that all employees are instructed in the content of this SWP.

BASELINE RISK ASSESSMENT WORKSHEET: IDENTIFYING EXISTING & POTENTIAL RISKS

Risk Ref.	Activity	Potential Hazard	Risk	Risk Evaluation			Risk Score E x P x S	Risk Level	Risk Rank	Control Measure
				E	P	S				
5 Construction Activities										

		Workers individually lifting 50kg bags	Poor ergonomics may result in muscular skeletal injuries	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that a SWP is developed, implemented and that all employees are instructed in the content of this SWP
	Brickwork Building storm water manholes, laying kerbs, grid inlets, cut off drains	Repetitive strain injuries	Poor ergonomics may result in muscular skeletal injuries	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that a SWP is developed implemented and that all employees are instructed in the content of this SWP.
			Loading / unloading material	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that a SWP is developed implemented
										about safe lifting and loading procedures.
	Re- inforcing concrete deck and capping beams Piling to support capping beam	Unsafe Scaffolding/ ladders temporary form work Moving machinery and plant	Unsafe scaffolding/ form work could result in collapse and critical injuries Unauthorised personnel and entry in the area could result in injury	6	6	7	252	High	4	The appointed competent Scaffolding supervisor must ensure that all erectors are deemed competent and the scaffolding conforms to SANS 10085. Designer must have drawings for the structure (Const. Regulations 9 (2)) Construction Manager to ensure area is enclosed off

BASELINE RISK ASSESSMENT WORKSHEET: IDENTIFYING EXISTING & POTENTIAL RISKS

Risk Ref.	Activity	Potential Hazard	Risk	Risk Evaluation			Risk Score E x P x S	Risk Level	Risk Rank	Control Measure
				E	P	S				
5 Construction Activities										
	Elevated work platforms	Unsafe scaffolding/ trestle scaffolds	Unsafe scaffolding could collapse resulting in critical injuries	6	6	7	252	High	4	The appointed competent Scaffolding supervisor must ensure that all erectors are deemed competent and the scaffolding conforms to SANS 10085
	Construction of capping beams	Unsafe formwork	Unsafe form work and support work	6	6	7	252	High	4	The Construction Manager must appoint a competent
	over concrete piles	and support work	could result in collapse and critical injuries							formwork support work supervisor

Risk Ref.	Activity	Potential Hazard	Risk	Risk Evaluation			Risk Score E x P x S	Risk Level	Risk Rank	Control Measure
				E	P	S				
5 Construction Activities										

	Relocation of electrical cables Moving of overhead suspension cables,	Exposed to high voltage Electrical Cables/ Wires	Contact with exposed electrical cables may result in electrocution	6	6	7	252	High	4	The Construction Manager must ensure that a specialist Contractor is appointed and a site specific H&S Plan, risk assessment, lock-out and safe working procedures are developed and implemented.
Risk Ref	Activity	Potential Hazard	Risk	E	P	S	Risk Score E x P x S	Risk Level	Risk Rank	Control Measure
	Move overhead tension bridge	Exposed to high voltage Electrical Cables/ Wires	Contact with exposed electrical cables may result in electrocution	6	6	7	252	High	4	The Construction Manager must ensure that a specialist Contractor is appointed and a site specific H&S Plan, risk assessment, lock-out and safe working procedures are developed and implemented.
	Suspension point for overhead cables	Exposed to high voltage Electrical Cables/ Wires	Contact with exposed electrical cables may result in electrocution	6	6	7	252	High	4	The Construction Manager must ensure that a specialist Contractor is appointed and a site specific H&S Plan, risk assessment, lock-out and
										safe working procedures are developed and implemented.

	Concrete mast and steel mast poles to be moved to new positions	Exposed to high voltage Electrical Cables/ Wires	Contact with exposed electrical cables may result in electrocution	6	6	7	252	High	4	The Construction Manager must ensure that a specialist Contractor is appointed and a site specific H&S Plan, risk assessment, lock-out and safe working procedures are developed and implemented.
	Housekeeping	Slips, trips and falls	Tripping and falling on superfluous materials can cause cuts on hands, injury to feet	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that waste is removed periodically and work areas kept clean at all times
									53	
6 Excavation Works										
	Excavating Deep layer works	Open Excavations	Open excavations could result in employees, or members of the public falling into it	6	6	7	252	High	4	The Construction Manager must ensure that only excavations necessary for foundation and pipe laying for the day is dug and backfilled by the end of the day. The Construction Manager must ensure that open excavations are barricaded with barrier or fence like

										structure of at least 1m high (Requirement of CR13 must be met)
		Unauthorised entry	Unauthorised access to site may result in critical injury to people	6	6	7	252	High	4	The Construction Manager must ensure that excavations should be preferably not open beyond what can be closed daily
		Open Excavation >1.5m	Excavations > 1.5m caving in may result in multiple fatalities	6	6	7	252	High	4	The Construction Manager must ensure that excavations are shored/braced or vertical walls sloped to 45 degrees and the excavation declared safe for use by the competent appointed Excavation Supervisor before employees are allowed access. The Safety Officer must ensure that a permit system is adopted for the duration of the contract
	Manual Excavation	The use of Hand tools (picks, spades)	An employee using a pick could strike the employee in front/rear resulting in injury	6	6	1	36	Possible Risk	2	The Construction Manager must ensure that employees are instructed in the contents of the site specific risk assessment

		Working in natural elements, sun, rain, glare & wind	Prolonged exposure to extreme high temperatures may result in heat stroke	6	6	1	36	Possible Risk	2	The Construction Manager must ensure that all employees have undergone medical examinations by an Occupational Health Practitioner and the requirements of the
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										Environmental Regulations for Workplaces are adhered to.
		Fast moving vehicles	Passing traffic could crash into employees working in an existing excavation	6	6	7	252	High	4	The Construction Manager must ensure that a site specific Traffic Accommodation Plan is developed and implemented on site which may include installing solid barriers
		Poor Ergonomics	Poor Ergonomics may result in muscular skeletal injuries	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that a SWP is developed implemented and that all employees are instructed in the content of the site specific risk assessment
		Snake bite	The presence of snakes may result in snake bites causing fatalities	6	6	7	252	High	4	The Construction Manager must ensure that a snake standard or procedure is developed and implemented on site. The Construction Manager must embark on a snake awareness training.

	Mechanical Excavation	The use of Defective Plant	The use of defective plant may result in accidents	6	6	3	54	Possible Risk	2	The Construction Manager must verify that all plant utilized on site has a recent service inspection register in place and signed off by the relevant technical manager
		The use of an untrained		6	6	7	252	High	4	The Construction Manager must verify that the Operator is deemed competent to

		operator may result in accidents								operate that specific plant and is medically fit The Safety Officer must take cognizance of the requirements of the Driven Machinery Regulations 2015
		Excavating across roads	Excavating across roads may result in accidents	6	6	7	252	High	4	The Construction Manager must ensure that a site specific Traffic Accommodation Plan is developed and implemented
		The continuous use of a Jack Hammer/ plate whacker	Continuous exposure to vibration may result in white fingers	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that a rotation scheduled is developed and implemented for the use of the Jack Hammer. The Safety Officer must ensure the appropriate hearing protection is used

		Accessing Excavations > 1.5m	Accessing Excavations >1.5m may result in multiple fatalities due to cave ins	6	6	7	252	High	4	The Construction Manager must ensure that excavations are shored/ braced or vertical walls sloped to 45 degrees and the excavation declared safe for use by the competent appointed Excavation Supervisor before employees are allowed access.
		Public / Contractor interface	Public accessing the work area could result in injuries	6	6	3	54	Possible Risk	2	The Construction Supervisor must ensure all work are adequately barricaded / cordoned off to prevent member of the public from entering

									44	
7 Drainage / Sewer / Storm water pipes										
	Placing of concrete stones, laying of concrete, plastic pipes.	Operating of TLB or Excavator in close proximity to workers and public vehicles	Critical injuries caused by TLB/ Excavator striking workers or TLB rolling over	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that the TLB/ Excavator Operator utilize a banksman

		Using TLB for lifting pipes or other material	Critical injuries caused by the TLB or Excavator striking workers or rolling over	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that the TLB/ Excavator has been modified or designed to be used as lifting equipment and the load test certificates provided.
		Incorrect use of defective hand tools	The incorrect and or defective hand tools could result in non- disabling/ first aid case i.e the hand or eyes	6	6	3	54	Possible Risk	2	The Construction Supervisors must ensure that all hand tools are inspected monthly and recorded in an applicable register with all defective hand tools removed from the site
		Incorrect use of defective electrical tools	The incorrect and or defective hand tools could result in non- disabling/ first aid case i.e the hand or eyes	6	6	3	54	Possible Risk	2	The Construction Supervisors must ensure that all portable electrical tools are inspected monthly and recorded in an applicable register with all defective equipment removed from the site
	Construction of drains/retaining walls and gabions	Poor Ergonomics	Poor Ergonomics may result in muscular skeletal injuries	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that workers are trained in the risk of ergonomic injuries and methods to mitigate the risks

		Handling of profiles, wires and stones	The handling of profiles, wires and stones may result in minor cuts and abrasions	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that workers are trained in the safe handling of material and equipment
									12	
8 Temporary Works										
	Erecting formwork, support work or scaffolding	Incompetent erector, designer or supervisor	Incompetent personnel may result in severe injuries or collapses	6	6	7	252	High	4	The Construction Manager must ensure that the personnel are deemed competent as per the requirements of the Construction Regulations 12 (Temporary Works)
		Defective Form work and Support work	Defective Form work and Support work may result in equipment failure and severe injuries	6	6	7	252	High	4	The Construction Manager must ensure that all the equipment is carefully examined by a competent person before use
		Unsafe scaffolding/ trestle scaffolds	Unsafe scaffolding could result in collapse and critical injuries	6	6	7	252	High	4	The appointed competent Scaffolding supervisor must ensure that all erectors are deemed competent and the scaffolding conforms to SANS 10085
		Working from height	Working from height may result in falls and critical injuries	6	6	7	252	High	4	The Construction Manager must ensure that all personnel working from height are deemed medically fit by an Occupational Health

										Practitioner and a Fall Protection Plan developed and implemented
	Pouring Ready Mix concrete	Concrete truck tipping over	Concrete truck tipping over could result in serious injury to the operator and workers close by	6	6	7	252	High	4	The Construction Manager must ensure that safe access to the pouring platform is created before the truck arrives on the site
	Steel fixing	Handling Reinforced steel	Steel fixers handling steel could result in cuts or puncture wounds	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that only trained employees carry out the steel fixing duties and that all exposed rebar are capped with rebar caps
									22	
9 Emergency Management										
	Development and implementation of an Emergency Management Plan	Failure to have a basic site specific Emergency Management Plan	Failure to have a basic, site specific Emergency Management Plan may result in injury and damage to property	6	6	7	252	High	4	The Construction Manager must ensure that a site specific Emergency Management Plan is developed for implementation
		Workers not trained in the Emergency Plan	Workers not trained in the Emergency Plan may result in their inability to respond to Emergencies	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that that workers are adequately and regularly trained to respond to Emergencies.

		Insufficient or no	Insufficient or no Emergency	6	6	7	252	High	4	The Construction Manager must ensure that a suitable
		Emergency equipment or personnel	equipment or personnel on site may result in Emergencies being critical							number of employees are appointed to the Emergency Team and that First Aid boxes, First Aiders, Fire Team members and any other equipment as identified during the risk assessment process is on site.
									10	
10 Sub-Contractor Management										
		Failure to adequately assess Sub Contractors S.H.E Management System before work commences and at regular intervals	Failure to manage Sub Contractors may result in injury and non compliance to Legislation	6	6	3	54	Possible Risk	2	The Safety Officer must ensure that the appointed Sub Contractors S.H.E system is audited monthly and on site activities supervised or monitored
		Inadequate supervision	Inadequate Supervision may result in a high level of employee unsafe behaviour	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that Sub Contractors have adequate competent Supervision on site at all times

		Utilizing incompetent Sub-Contractors	Utilizing incompetent Sub Contractors may result in accidents	6	6	3	54	Possible Risk	2	The Construction Manager must be reasonably satisfied that the Sub Contractors intended to be appointed have the necessary competencies and resources to carry out the work safely
			Utilizing	6	6	3	54	Possible Risk	2	The Construction Manager
			incompetent Sub Contractors may result in damage to the Environment					le Risk		must be reasonably satisfied that the Sub-Contractors appointed have the necessary competency and resources to carry out the work safely
									8	
11 Community Risk Management										
		Failure to adequately monitor and manage the multi faced social issues	Failure to manage social issues could result in violent protests and injury to employees	6	6	3	54	Possible Risk	2	The Construction Manager must ensure that a Community Liaison Officer (CLO) and project steering Committee is appointed to manage social issues
									2	

RISK PROFILE

